

Patent Claims

1. Device for illuminating a line surface (3) having a light source (1, 9) designed linearly or being linearly arranged and having at least one linearly formed optical element (2, 10), wherein in the region of said optical elements (2, 10) of said light source (1, 9) said device comprises at least one diaphragm (6) which effects a variable numerical aperture in the direction of the line.
2. Device according to claim 1, wherein the variable numerical aperture is designed in such a manner that the vignetting (decrease in light intensity at the periphery), which occurs when imaging a line by means of a lens, is compensated according to $E(w) = E \cdot \cos^4(w)$ or another dependency.
3. Device according to claim 2, wherein the diaphragm (6, 14) is made of a non-transmissive material.
4. Device according to claim 2, wherein the diaphragm (6, 14) is made of a spectral transmissive material.
5. Device according to claim 2, wherein the diaphragm (6, 14) is made of a material having spectral transmissive / non-transmissive patterns.
6. Device according to claim 2, wherein the diaphragm (6, 14) is made of a phase shifting structured material.